

# HYDROTHOL® 191

AQUATIC ALGAE CIDE AND HERBICIDE

For algae and aquatic plant control in quiescent, slow moving,  
and flowing water aquatic sites.

**ACTIVE INGREDIENT:**

Mono(N,N-dimethylalkylamine) salt of endothall\* ..... 53.0%

**OTHER INGREDIENTS:** ..... 47.0%

**TOTAL** ..... 100.0%

\*7-oxabicyclo [2.2.1] heptane-2,3-dicarboxylic acid equivalent 23.36%

Contains 2 lbs. endothall acid per gallon

**KEEP OUT OF REACH OF CHILDREN**

**DANGER PELIGRO**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand the label, find someone to explain it to you in detail.)

**FIRST AID**

**IF IN EYES:**

- Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.
- Call a poison control center or doctor for treatment advice.

**IF ON SKIN OR CLOTHING:**

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

**IF SWALLOWED:**

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told by a poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

**IF INHALED:**

- Move person to fresh air.
- If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
- Call a poison control center or doctor for treatment advice.

**HOT LINE NUMBER:** Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 866-673-6671 (Rocky Mountain Poison Control Center) for emergency medical treatment information.

See inside for additional precautionary statements.

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage. Measures against circulatory shock, respiratory depression and convulsion may be needed.

EPA Registration No. 70506-175

Batch/Lot No.: \_\_\_\_\_

**Net Contents:** \_\_\_\_\_



**UPI**

**United Phosphorus, Inc.**

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1-800-438-6071

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS **DANGER**

CORROSIVE. CAUSES IRREVERSIBLE EYE DAMAGE AND SKIN BURNS. MAY BE FATAL IF SWALLOWED, OR ABSORBED THROUGH SKIN. HARMFUL IF INHALED. DO NOT GET IN EYES, ON SKIN OR ON CLOTHING. AVOID BREATHING VAPOR OR SPRAY MIST.

### Personal Protective Equipment (PPE)

Mixers, loaders, applicators and other handlers must wear:

- Coveralls over long-sleeved shirt and long pants,
- Chemical-resistant footwear plus socks,
- Chemical-resistant gloves made of any waterproof material,
- Chemical-resistant headgear for overhead exposure,
- Protective eyewear,
- Chemical-resistant apron when mixing, loading, or cleaning equipment,
- NIOSH-approved respirator with a dust/mist filter with MSHA/NIOSH approval number prefix TC-21C or any N, R, P, or HE filter.

Exception: During application, the respirator need not be worn, provided that the pesticide is applied in a manner (such as direct metering or subsurface release from the rear of a vessel that is moving into the wind) such that the applicator will have no contact with the pesticide.

Exception: When the product is applied in a manner in which the applicator will have no contact with the pesticide (such as direct metering or subsurface injection), coveralls need not be worn.

See Engineering Controls for additional requirements.

### User Safety Requirements:

Follow the manufacturers' instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

### Engineering Controls:

When mixers and loaders use a closed system designed by the manufacturer to enclose the pesticide to prevent it from contacting handlers or other people AND the system is functioning properly and is used and maintained in accordance with the manufacturers written operating instructions, the handlers need not wear a respirator, provided the required respirator is immediately available for use in an emergency such as a spill or equipment breakdown.

When handlers use closed systems, enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

User should:

- Wash hands thoroughly after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

## ENVIRONMENTAL HAZARDS

Do not contaminate water by cleaning of equipment or disposal of equipment washwaters.

This pesticide is highly toxic to fish and aquatic invertebrates. This pesticide is toxic to wildlife.

Treatment of algae and aquatic plants can result in oxygen loss from decomposition of dead algae and plants. This loss can cause fish suffocation. Water bodies containing very high algae or plant density should be treated in sections to prevent suffocation of fish.

## PRODUCT INFORMATION

Hydrothol 191 is a liquid concentrate soluble in water and is a highly effective aquatic algaecide and herbicide. Apply when target algae and plants are actively growing. Note: Susceptibility of algae may vary due to subspecies, strains or environmental conditions. Dosage rates are measured in parts per million (ppm) endothall acid.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift.

- When used as directed, phytotoxicity is not expected on plants or crops irrigated with Hydrothol 191 treated water, however, all species and cultivars (varieties) have not been tested.
- Undiluted Hydrothol 191 may be injurious to crops, grass, ornamentals or other foliage.
- Do not use Hydrothol 191 treated water for chemigation as interactions between Hydrothol 191 and other pesticides and fertilizers are not known.
- Do not use Hydrothol 191 in waters containing Koi or hybrid goldfish.
- Hydrothol 191 is not intended for use in small volume garden pond systems.
- Fish may be killed by dosages in excess of 0.3 parts per million (ppm).
- Do not use Hydrothol 191 in brackish or saltwater.
- Wash out spray equipment with water after each operation.
- Contact of spray concentrate (product) directly or by drift with non-target plants or crops may result in injury.
- Do not treat more than 10% of the area at one time with doses in excess of 1 ppm in slow moving or quiescent waters.

## HOW TO APPLY:

Hydrothol 191 is a contact algaecide and herbicide. Apply when target algae and plants are present. Hydrothol 191 may be sprayed on the water or injected below the water surface. It may be applied as a concentrate or diluted with water depending on the equipment. Hydrothol 191 can be applied to floating algae mats as a surface application. In instances where the algae or plant(s) to be controlled is an exposed surface problem (i.e. some of the broad-leaved pond weeds) coverage is important. For best results, apply the concentrate with the least amount of water compatible with the application equipment.

### Drinking Water (Potable Water)

Consult with appropriate state or local water authorities before applying this product to public waters. State or local agencies may require permits.

The drinking water (potable water) restrictions on this label are to ensure that consumption of water by the public is allowed only when the concentration of endothall acid in the water is less than the MCL (Maximum Contamination Level) of 0.1 ppm. Applicators must consider the unique characteristics of the treated waters to assure that endothall acid concentrations in potable drinking water do not exceed 0.1 ppm at the time of consumption.

#### For Lakes, Ponds, and other Quiescent Water Bodies:

- For Hydrothol 191 applications, the drinking water setback distance from functioning potable water intakes in the treated water body must be greater than or equal to 600 feet.
- Note: Existing potable water intakes that are no longer in use, such as those replaced by a connection to a municipal water system or a potable water well, are not considered to be functioning potable water intakes.

#### For Flowing Water Bodies:

- Applicator is responsible to assure that treated water exceeding the MCL of 0.1 ppm does not enter potable water intakes. For Hydrothol 191 applications, potable water intakes must be closed when treated water exceeding the MCL of 0.1 ppm is present at the intake. In the event the water intake cannot be closed (when treated water is present that exceeds 0.1 ppm), treatments must only be made downstream from the intake in order to assure Hydrothol 191 treated water above 0.1 ppm does not enter the potable water system.

### QUIESCENT OR SLOW MOVING WATER TREATMENTS: SURFACE OR INJECTED APPLICATIONS

**ALGAE CONTROL:** Hydrothol 191 is effective on a broad range of planktonic, filamentous, and branched algae. Note: Susceptibility of algae may vary due to subspecies, strains or environmental conditions. Generally rates of 0.05 to 0.3 ppm (0.6-3.6 pints per acre foot) are effective for the control of algae. Repeat applications when algae reappear and reach treatment levels. Dosages may be increased (from 0.3 to 3.0 ppm) where greater longevity of control is desired or to improve efficacy on species that prove difficult to control. Due to the potential for fish toxicity at higher rates, it is suggested that applications above 0.3 ppm be made only by commercial applicators as marginal or sectional treatments.

**FLOATING ALGAE MATS:** Apply Hydrothol 191 when algae is actively growing. Spray Hydrothol 191 over-the-top of floating algae mats using a 3-5% spray solution (based on volume). Use a minimum of 0.5 gal. per surface acre with adequate water volume to assure complete coverage. When used in this manner, coverage is critical; only the algae sprayed will be controlled. Any submerged algae will require additional treatment as described in the ALGAE CONTROL section of this label. Results are usually observed in a few days on algae.

**SUBMERGED AQUATIC PLANTS:** Apply Hydrothol 191 at 1 to 5 ppm (1.4 gallons to 6.8 gallons per acre foot) for control of aquatic plants. Due to potential fish toxicity, Hydrothol 191 use for submerged aquatic plant control is suggested to be made only by commercial applicators as marginal or sectional treatments. Use application rates over 1.0 ppm only on very narrow margins or in areas where some fish kill is not objectionable.

### RATES FOR SURFACE OR INJECTED APPLICATIONS TO QUIESCENT OR SLOW-MOVING WATER:

Algae or Plant	Rate ppm endothall acid	Amount of Hydrothol 191 per Acre Ft.
Algae Planktonic, Filamentous, Branched (Use in California limited to <i>Cladophora</i> , <i>Pithophora</i> , <i>Spirogyra</i> , <i>Chara</i> )	0.05-3.0	0.6-36 pints
<b>Aquatic Plants</b>		
Fanwort, <sup>a,b,c</sup> <i>Cabomba caroliniana</i>	2.0-5.0	2.7-6.8 gals.
Brazilian Elodea, <i>Egeria densa</i>	2.0-5.0	2.7-6.8 gals.
Elodea, <sup>c</sup> <i>Elodea canadensis</i>	2.0-5.0	2.7-6.8 gals.
Hydrilla, <i>Hydrilla verticillata</i>	1.0-5.0	1.4-6.8 gals.
Hygrophila, <sup>a,b,c</sup> <i>Hygrophila polysperma</i>	2.0-5.0	2.7-6.8 gals.
Eelgrass, <sup>c</sup> <i>Vallisneria americana</i>	2.0-5.0	2.7-6.8 gals.
Coontail, <sup>c</sup> <i>Ceratophyllum</i> spp.	1.5-5.0	2.0-6.8 gals.
Horned Pondweed, <sup>c</sup> <i>Zannichellia palustris</i>	1.5-5.0	2.0-6.8 gals.
Milfoil, <sup>c</sup> <i>Myriophyllum</i> spp.	1.5-5.0	2.0-6.8 gals.
Sago Pondweed, <sup>c</sup> <i>Stuckenia pectinata</i>	1.0-5.0	1.4-6.8 gals.
Naiad, <sup>c</sup> <i>Najas</i> spp.	1.5-5.0	2.0-6.8 gals.
Pondweed, <sup>c</sup> <i>Potamogeton</i> spp.	0.75-5.0	1.0-6.8 gals.
<b>Including:</b>		
American, <i>P. nodosus</i>	1.5-5.0	2.0-6.8 gals.
Largeleaf (Bass Weed), <i>P. amplifolius</i>	1.5-5.0	2.0-6.8 gals.
Curlyleaf, <i>P. crispus</i>	0.75-5.0	1.0-6.8 gals.
Flatstem, <i>P. zosteriformis</i>	1.5-5.0	2.0-6.8 gals.
Floating-leaf, <i>P. natans</i>	1.0-5.0	1.4-6.8 gals.
Illinois, <i>P. illinoensis</i>	1.25-5.0	1.7-6.8 gals.
Narrowleaf, <i>P. pusillus</i>	1.0-5.0	1.4-6.8 gals.
Threadleaf, <i>P. filiformis</i>	1.5-5.0	2.0-6.8 gals.
Variable Leaf, <i>P. diversifolius</i>	1.0-5.0	1.4-6.8 gals.
Water Stargrass, <sup>a,c</sup> <i>Heteranthera</i> spp.	1.5-5.0	2.0-6.8 gals.

<sup>a</sup> Not for this use in California

<sup>b</sup> Suppression only

<sup>c</sup> Not for this use in New York

**FLOWING WATER TREATMENTS**  
**(WITH THE EXCEPTION OF IRRIGATION CANALS):**  
**DRIP OR METERING SYSTEMS**

For algae and aquatic plant control in flowing water, Hydrothol 191 use rates can be found in the following chart. Apply Hydrothol 191 in a manner to achieve the desired rate and adequate mixing so Hydrothol 191 is distributed throughout the entire water column. Adequate concentration (rate) and exposure time (length of treatment) will impact Hydrothol 191 efficacy on the target algae and plant species. Although Hydrothol 191 is a contact algaecide and herbicide, adequate exposure time is critical. The following rate chart has been developed based on Concentration Exposure Time (CET) data for Hydrothol 191. The CET concept allows rates and the length of exposure to be adjusted for different treatment scenarios.

**FLOATING ALGAE MATS:** Apply Hydrothol 191 when algae is actively growing. Spray Hydrothol 191 over-the-top of floating algae mats using a 3-5% spray solution (based on volume). Use a minimum of 0.5 gal. per surface acre with adequate water volume to assure complete coverage. When used in this manner, coverage is critical; only the algae sprayed will be controlled. Any submerged algae will require additional treatment as described in the ALGAE CONTROL section of this label. Results are usually observed in a few days on algae.

**RATES FOR DRIP OR METERING APPLICATION TO FLOWING WATER**  
**(WITH THE EXCEPTION OF IRRIGATION CANALS):**

Target Species	Rate ppm endothall acid	Duration	Restrictions
<b>Algae:</b> Planktonic, Filamentous, Branched (Use in California limited to <i>Cladophora</i> , <i>Pithophora</i> , <i>Spirogyra</i> , <i>Chara</i> )	0.05-3.0	6-120 hours	A maximum of 30 ppm per growing season, not to exceed 5 ppm per application. Do not apply more than a total of 5 ppm within a 7-day interval.
<b>Plants:</b> Fanwort, <sup>a,b,c</sup> <i>Cabomba caroliniana</i> Coontail, <sup>c</sup> <i>Ceratophyllum</i> spp. Elodea, <sup>c</sup> <i>Elodea canadensis</i> Hydrilla, <i>Hydrilla verticillata</i> Hygrophila, <sup>a,b,c</sup> <i>Hygrophila polysperma</i> Milfoil, <sup>c</sup> <i>Myriophyllum</i> spp. Naiad, <sup>c</sup> <i>Najas</i> spp. Pondweed, <sup>c</sup> <i>Potamogeton</i> spp. Water Stargrass, <sup>a,c</sup> <i>Heteranthera</i> spp. Eelgrass, <sup>c</sup> <i>Vallisneria americana</i> Horned Pondweed, <sup>c</sup> <i>Zannichellia palustris</i> Sago Pondweed, <sup>c</sup> <i>Stuckenia pectinata</i>	0.2-5.0	6-120 hours	There is no Pre-harvest Interval (PHI) for crops irrigated with treated water.

<sup>a</sup> Not for this use in California

<sup>b</sup> Suppression only

<sup>c</sup> Not for this use in New York

**Restriction for flowing waters used for irrigation of food crops:** Do not apply more than 30 ppm per growing season, not to exceed 5 ppm per application. Do not apply more than a total of 5 ppm within a 7-day interval.

**Note:** There is no Pre-harvest Interval (PHI) for crops irrigated with treated water.

To calculate the amount of Hydrothol 191 required for a particular treatment use the following formula:

**[Cubic Feet per Second (CFS) X Length of Treatment (hrs.) X Rate (ppm)] x 0.11198 = Gallons of Hydrothol 191 Needed for Treatment**

To calculate the amount of Hydrothol 191 to be applied per hour use the following formula:

**Gallons of Hydrothol 191 per hour = Total Gallons of Hydrothol 191 / Length of Treatment (hrs.)**

## STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage and disposal.

**Pesticide Storage:** Store in the original container. Do not store in a manner where cross-contamination with other pesticides, fertilizers, food or feed could occur. In the event of a spill during handling or storage, absorb with sand or other inert material and dispose of absorbent in accordance with the Pesticide Disposal instructions listed below.

**Pesticide Disposal:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

### Container Handling:

*(for Nonrefillable containers)*

**Nonrefillable container. Do not reuse or refill this container.** Triple rinse or pressure rinse container promptly after emptying.

*For containers 5 gallons or less:*

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

Or

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

*For containers more than 5 gallons:*

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times.

Or

Pressure rinse as follows: Empty the remaining contents into application equipment or a mix tank. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Pour or pump rinsate into application equipment or rinsate collection system. Drain for 10 seconds after the flow begins to drip.

Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

*(for Refillable containers)*

**Refillable container. Refill this container with pesticide only. Do not use this container for any other purpose.** Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or reconditioning if appropriate or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities.

## EMERGENCY TELEPHONE NUMBERS

CHEMTREC: (800) 424-9300

MEDICAL: (866) 673-6671 Rocky Mountain Poison Control Center

**IMPORTANT INFORMATION  
READ BEFORE USING PRODUCT**

**CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY**

**NOTICE:** Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product reflect the opinion of experts based on field use and tests, and must be followed carefully. It is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of United Phosphorus, Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of United Phosphorus, Inc. and Seller. To the extent consistent with applicable law, all such risks shall be assumed by Buyer and User, and Buyer and User agree to hold United Phosphorus, Inc. and Seller harmless for any claims relating to such factors.

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